

(FILE 'HOME' ENTERED AT 14:06:25 ON 23 NOV 1999)

FILE 'CA' ENTERED AT 14:06:44 ON 23 NOV 1999

L1 786 S EXPAND### (2A) GRAPHIT###
 L2 66 S L1 AND BATTER###
 L3 1 S KEROSENE AND L2
 L4 11 S L2 AND ALKALINE

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YOU HAVE REQUESTED DATA FROM 11 ANSWERS - CONTINUE? Y/(N):y

L4 ANSWER 1 OF 11 CA COPYRIGHT 1999 ACS
 ACCESSION NUMBER: 131:76201 CA
 TITLE: **Alkaline battery** having a
 manganese dioxide cathode incorporating
expanded graphite
 INVENTOR(S): Nardi, John C.
 PATENT ASSIGNEE(S): Eveready Battery Company, Inc., USA
 SOURCE: PCT Int. Appl., 46 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9934673	A1	19990715	WO 1999-US270	19990106
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9922139	A1	19990726	AU 1999-22139	19990106
PRIORITY APPLN. INFO.:			US 1998-72269	19980107
			US 1998-213544	19981217
			WO 1999-US270	19990106

AB An alk. **battery** has a cathode contg. an **expanded graphite** as an elec. conductive carbon material. The **expanded graphite** has a kerosene absorption in the range of 2.2 to 3.5 mL/g, to provide enhanced service performance to the cell.

L4 ANSWER 2 OF 11 CA COPYRIGHT 1999 ACS
 ACCESSION NUMBER: 131:7581 CA
 TITLE: **Alkaline** dry cells showing high and durable
 discharge capacity and their preparation
 INVENTOR(S): Kamishima, Toshiaki; Katagiri, Hideaki
 PATENT ASSIGNEE(S): Chuetsu Kokuen Kogyosho K. K., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent

LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 11149927	A2	19990602	JP 1997-330974	19971114
AB	The alk. dry cells use cathodes contg. MnO ₂ and elec. conductive C, whereas interlamellar space- expanded graphite having apparent sp. gr. 0.002-0.06 g/cm ³ , and av. grain size 55-1000 .mu.m (in cathodes) is used as the conductive C. Prepn. of the dry cells using the cathodes are also claimed. By including the graphite, elec. cond. of the cathodes is remarkably improved, so that the batteries show small inner resistivity.				

L4 ANSWER 3 OF 11 CA COPYRIGHT 1999 ACS
ACCESSION NUMBER: 126:214395 CA
TITLE: **Alkaline manganese batteries** using cathodes containing **expanded graphite** as conductor
INVENTOR(S): Shimizu, Takashi; Kaneko, Toshikazu; Sugimoto, Hisanori; Ishikawa, Kojiro
PATENT ASSIGNEE(S): Matsushita Electric Ind Co Ltd, Japan; Nippon Kokuen Kogyo Kk
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 09035719	A2	19970207	JP 1995-183960	19950720
AB	The batteries use MnO ₂ cathodes contg. wet ground expanded graphite as conductive additive. The use of this conductive additive allows the cathodes using less additive for increased content of MnO ₂ for high capacity.				

L4 ANSWER 4 OF 11 CA COPYRIGHT 1999 ACS
ACCESSION NUMBER: 126:174305 CA
TITLE: Cathode mass for **alkaline dry-cell batteries**
INVENTOR(S): Maeda, Mutsuhiro
PATENT ASSIGNEE(S): Toshiba Battery, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 09007601	A2	19970110	JP 1995-148490	19950615
AB	The cathode mass comprises expanded graphite as a part or all of C conductive agents. The cathode mass has good shapeability and discharge properties.				

L4 ANSWER 5 OF 11 CA COPYRIGHT 1999 ACS
ACCESSION NUMBER: 123:291854 CA
TITLE: Manganese dioxide cathode for **alkaline manganese battery**
INVENTOR(S): Mototani, Yuji; Asaoka, Junichi; Tanaka, Hitoshi

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 675556	A1	19951004	EP 1995-104334	19950323
R: BE, CH, DE, FR, GB, IT, LI, NL				
JP 07272715	A2	19951020	JP 1994-57335	19940328
AU 9514936	A1	19951102	AU 1995-14936	19950320
AU 670897	B2	19960801		
US 5482798	A	19960109	US 1995-406595	19950320
CA 2145564	AA	19950929	CA 1995-2145564	19950327
CA 2145564	C	19980707		
CN 1115122	A	19960117	CN 1995-103625	19950328

PRIORITY APPLN. INFO.:

JP 1994-57335 19940328

AB The cathode material comprises MnO₂ and electroconductive C material comprising **expanded graphite** particles having av. particle size 0.5-15 .mu.m, and **expanded graphite** particle content 2-8 wt.% based on the solids in the cathode material. The alk. **battery** has excellent discharge characteristics and higher discharge capacity with suppressed increase in its internal resistance.

L4 ANSWER 6 OF 11 CA COPYRIGHT 1999 ACS

ACCESSION NUMBER: 109:234219 CA

TITLE: Sealed **alkaline batteries** with coated hydrogen-absorbing anodes

INVENTOR(S): Yanagihara, Nobuyuki; Ikoma, Munehisa; Kawano, Hiroshi; Matsumoto, Isao

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63195960	A2	19880815	JP 1987-27709	19870209
JP 07063004	B4	19950705		

AB H-absorbing alloy (or metal hydride) anodes are coated with O-absorbing **expanded graphite** and/or amorphous C layer. Thus, Mn_{0.5}La_{0.5}Ni_{3.5}Co_{1.5} (Mm = misch metal) powder was mixed with a binder, filled in porous metal substrates, and coated with a slurry of **expanded graphite** and a fluoropolymer, dried, and heat treated to obtain H-absorbing anodes. **Batteries** using these anodes had an internal pressure of 4 Kg/cm² after 50 charging-discharging cycles and retained 95% of their initial capacity after 200 cycles, vs.

10

Kg/cm² and 60%, resp., for **batteries** using uncoated anodes.

L4 ANSWER 7 OF 11 CA COPYRIGHT 1999 ACS

ACCESSION NUMBER: 109:193800 CA

TITLE: Secondary **alkaline batteries** with zinc anodes

INVENTOR(S): Ueda, Takashi; Ishikura, Yoshikazu; Furukawa, Sanehiro

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

CODEN: JKXXAF

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63155556	A2	19880628	JP 1986-302303	19861218

AB Zn anodes for secondary alk. **batteries** contain Ca(OH)₂ particles of 50-300- μ m size inside the anodes and a Ca(OH)₂ layer of particles of the same size on the surface. Thus, an active mass contg. ZnO 45, Zn 45, and Hg oxide 5 wt. parts was mixed with 50-300- μ m Ca(OH)₂ 5, **expanded graphite** 2, and Ca lignosulfonate 0.5 wt.% (all based on active mass), kneaded with 5 wt. parts PTFE dispersion and water.

The formed paste was applied to both sides of an expanded metal sheet, a dispersion of 50-300- μ m Ca(OH)₂ particles in water was coated on the paste layer at 5 mg/cm², and the coated sheet was dried to obtain an anode. When subjected to 5-h charging at 360 mA and 360-mA discharge to 1.0-V cutoff, an alk. **battery** using a coiled stack of this anode and a Ni cathode had longer cycle life than **batteries** without the Ca(OH)₂ surface layer on with surface layers of finer or coarser Ca(OH)₂ particles.

L4 ANSWER 8 OF 11 CA COPYRIGHT 1999 ACS
ACCESSION NUMBER: 109:96037 CA
TITLE: Secondary **alkaline zinc batteries**
INVENTOR(S): Ishikura, Yoshikazu; Fujiwara, Yoshiki; Ueda, Takashi
PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63126164	A2	19880530	JP 1986-271379	19861114

AB Zn anodes of alk. **batteries** have a Zn or ZnO-based active mass contg. C powder with the Zn powder covered with a ZnO layer by oxidn.

The ZnO layer on the Zn powder weighs <30% of the powder; and the C powder is selected from **expanded graphite**, synthetic graphite, carbon black, acetylene black, and/or Ketjenblack. Thus, a mixt. of ZnO 45, Zn powder contg. 10% wt. (as Zn) ZnO surface layer 45, HgO 5, and **expanded graphite** 2 parts was kneaded with PTFE dispersion and rolled into sheets, and pressed on collector plates to form anodes for **batteries** using sintered Ni cathodes and a 40% KOH electrolyte. When cycled at 360 mA for 5-h charging and discharging to 1.0-V cutoff, these **batteries** retained 82% of their original capacity after 400 cycles, while that of **batteries** using anode of un-oxidized Zn and without graphite dropped to <50% in <400th cycles.

L4 ANSWER 9 OF 11 CA COPYRIGHT 1999 ACS
ACCESSION NUMBER: 109:96032 CA
TITLE: **Alkaline zinc batteries** with anodes containing carbon and calcium hydroxide
INVENTOR(S): Ishikura, Yoshikazu; Fujiwara, Yoshiki; Ueda, Takashi
PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
AB	JP 63124367	A2	19880527	JP 1986-269145	19861112
Secondary alk. Zn batteries have anode contg. 0.5-5.0% C powder and 3-20% Ca(OH) ₂ . The carbon powder is selected from expanded graphite , synthetic graphite , carbon black, acetylene black, and Ketjenblack. Thus, an anode-active mass contg. 45 parts each of Zn and ZnO was mixed with 5% HgO, 5% Ca(OH) ₂ , and 0.5% expanded graphite powder, kneaded with a PTFE dispersion, rolled into sheet, and bounded to collectors to obtain anodes. Ni batteries having these anodes and a KOH electrolyte showed longer charge-discharge cycle life than batteries using cathodes without graphite and/or Ca(OH) ₂ .					

L4 ANSWER 10 OF 11 CA COPYRIGHT 1999 ACS

ACCESSION NUMBER: 109:96015 CA

TITLE: **Alkaline batteries** with calcium hydroxide-containing zinc anodes

INVENTOR(S): Ueda, Takashi; Ishikura, Yoshikazu; Furukawa, Sanehiro

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
AB	JP 63126163	A2	19880530	JP 1986-272632	19861114
Alk. batteries have Zn anodes contg. 3-20% 50-250-.mu.m Ca(OH) ₂ particles. Thus, 100 parts of an anode-active mass contg. ZnO 45, Zn 45, and Hg oxide 5 wt. parts was mixed with 50-250-.mu.m Ca(OH) ₂ 5, expanded graphite 2, and Ca lignosulfonate 0.5 parts, kneaded with 5 parts PTFE dispersion and water, and pressed on both sides of an expanded metal to obtain an anode. When cycled at 360 mA for 5-h charging and discharging to 1.0-V cutoff, a battery using a coiled stack of this anode and a sintered Ni cathode and a KOH electrolyte showed no significant decrease in capacity after 300 cycles, but batteries using 5-45-.mu.m and 300-600-.mu.m Ca(OH) ₂ particles showed significant decrease within 250 cycles.					

L4 ANSWER 11 OF 11 CA COPYRIGHT 1999 ACS

ACCESSION NUMBER: 100:54584 CA

TITLE: **Alkaline zinc battery**

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
AB	JP 58165250	A2	19830930	JP 1982-49298	19820326
A high cycle-life title battery with inhibited dendritic or spongy Zn deposition has a Zn anode contg. an expanded					

graphite. The amt. of liq. electrolyte is regulated to be completely absorbed by a support. Thus, a paste sheet was prepd. from mixt. of powd. ZnO 77, powd. Zn 10, CdO 5, **expanded graphite** 3, and a fluoropolymer 5%. A Cu grid was sandwiched between 2 such sheets, and the composite was dried to give a Zn anode. A cell using the anode, a conventional sintered Ni cathode, and a controlled amt. of an alk. electrolyte showed a capacity decrease of .1torsim.5% after .apprx.100 cycles of 150 mA-5 h charge and 150 mA-1.2 V cutoff voltage discharge compared with .apprx.40% when the **expanded graphite** was replaced by an addnl. amt. of powd. ZnO.

L7 ANSWER 1 OF 14 USPATFULL

ACCESSION NUMBER: 1999:124633 USPATFULL
 TITLE: Nonaqueous secondary **battery** and a method of
 manufacturing a negative electrode active material
 INVENTOR(S): Nishimura, Naoto, Kitakatsuragi-gun, Japan
 Yamada, Kazuo, Kitakatsuragi-gun, Japan
 Tsukuda, Yoshihiro, Osaka, Japan
 Mitate, Takehito, Yamatotakada, Japan
 Minato, Kazuaki, Osaka, Japan
 PATENT ASSIGNEE(S): Sharp Kabushiki Kaisha, Osaka, Japan (non-U.S.
 corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5965296	19991012
APPLICATION INFO.:	US 1997-862677	19970523 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1996-128758	19960523
	JP 1996-268074	19961009
	JP 1997-16973	19970130
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Kalafut, Stephen	
LEGAL REPRESENTATIVE:	Nixon & Vanderhye P.C.	
NUMBER OF CLAIMS:	22	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	5 Drawing Figure(s); 3 Drawing Page(s)	
LINE COUNT:	1407	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A nonaqueous secondary **battery** comprising a negative
 electrode, a positive electrode in which a chalcogenated substance
 containing lithium is used as a positive electrode active material and
 a
 nonaqueous ion conductor, said negative electrode containing a negative
 electrode active material which is a carbon material where an amorphous
 carbon is adhered on the surface of graphite particles which are
 subjected to an oxidizing treatment.

L7 ANSWER 2 OF 14 USPATFULL

ACCESSION NUMBER: 1999:75446 USPATFULL
 TITLE: Rechargeable **battery**
 INVENTOR(S): Kawakami, Soichiro, Nara, Japan
 Kabayashi, Naoya, Nara, Japan
 Asao, Masaya, Tsuzuki-gun, Japan
 PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Tokyo, Japan (non-U.S.
 corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5919589	19990706
APPLICATION INFO.:	US 1997-812307	19970305 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1996-73080	19960305
DOCUMENT TYPE:	Utility	

PRIMARY EXAMINER: Kalafut, Stephen
LEGAL REPRESENTATIVE: Fitzpatrick, Cella, Harper & Scinto
NUMBER OF CLAIMS: 24
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 4 Drawing Figure(s); 4 Drawing Page(s)
LINE COUNT: 1331

AB Disclosed is a rechargeable **battery** comprising an anode, a separator, a cathode, an electrolyte, and a **battery** housing accommodating the members, the **battery** being of a type utilizing intercalating and deintercalating reactions of lithium ions as

charging and discharging reactions of the **battery**. The anode comprises a host material for allowing lithium ions to intercalate therein upon conducting the charging, and the host material comprises a carbonous material containing a crystalline portion in which a graphite structure is developed and an amorphous portion in which the graphite structure is not developed. The crystalline portion and the amorphous portion of the carbonous material exhibit two or more of peaks in a region of $2.\theta = 22-27^\circ$ based on the (002) face on a chart obtained by X-ray wide angle diffraction using CuK α -rays.

* L7 ANSWER 3 OF 14 USPATFULL

ACCESSION NUMBER: 1999:75445 USPATFULL
TITLE: Cathode additive for alkaline primary cells
INVENTOR(S): Jose, Horst-Udo, Ellwangen, Germany, Federal Republic of
Puin, Wolfgang, Huttlingen, Germany, Federal Republic of
Klaus, Christoph, Ellwangen, Germany, Federal Republic of
PATENT ASSIGNEE(S): Varta Batterie Aktiengesellschaft, Hannover, Germany, Federal Republic of (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5919588	19990706
APPLICATION INFO.:	US 1997-839650	19970415 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1996-19615845	19960420
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Nuzzolillo, M	
ASSISTANT EXAMINER:	Chaney, Carol	
LEGAL REPRESENTATIVE:	Weiser and Associates, P.C.	
NUMBER OF CLAIMS:	16	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	1 Drawing Figure(s); 1 Drawing Page(s)	
LINE COUNT:	296	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention relates to alkaline primary cells comprising a zinc gel as the anode material, an aqueous alkaline electrolyte, a separator and a cathode material containing manganese dioxide, wherein the cathode material comprises 0.1-5% by weight of **alkali** metal titanates and/or alkaline earth metal titanates.

L7 ANSWER 4 OF 14 USPATFULL

ACCESSION NUMBER: 1998:98709 USPATFULL
TITLE: Non-aqueous electrolyte type secondary **battery**
INVENTOR(S): Ikeda, Katsuji, Tokyo, Japan
Hiratsuka, Kazuya, Tokyo, Japan
Morimoto, Takeshi, Tokyo, Japan
Matsumoto, Shinji, Fujisawa, Japan
PATENT ASSIGNEE(S): Asahi Glass Company Ltd., Tokyo, Japan (non-U.S.)

corporation)
Elna Company Ltd., Fujisawa, Japan (non-U.S.
corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5795680	19980818
APPLICATION INFO.:	US 1996-758371	19961129 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1995-336132	19951130
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Gorgos, Kathryn L.	
ASSISTANT EXAMINER:	Chaney, Carol	
LEGAL REPRESENTATIVE:	Oblon, Spivak, McClelland, Maier & Neustadt, P.C.	
NUMBER OF CLAIMS:	9	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	2 Drawing Figure(s); 1 Drawing Page(s)	
LINE COUNT:	930	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A non-aqueous electrolyte type secondary **battery** comprises a negative electrode capable of occluding and releasing lithium, a positive electrode capable of occluding and releasing lithium, a non-aqueous electrolyte which contains a lithium salt, and a container for accommodating the negative electrode, the positive electrode, and the electrolyte. The negative electrode is formed by pressing a foam metal or a fibrous sintered metal which contains nickel as a principal component thereof and which is filled with a mixture of a binder and a carbon material capable of occluding and releasing lithium. The negative electrode has a thickness of not less than 0.1 mm and a porosity of 20 to 50%.

L7 ANSWER 5 OF 14 USPATFULL

ACCESSION NUMBER: 1998:98707 USPATFULL
TITLE: Negative electrode for use in lithium secondary **battery** and process for producing the same
INVENTOR(S): Takami, Norio, Yokohama, Japan
Ohsaki, Takahisa, Yokohama, Japan
Tamaki, Toshio, Kamisu-machi, Japan
Nakajima, Hideyuki, Kamisu-machi, Japan
Katsuta, Yasushi, Kamisu-machi, Japan
PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Tokyo, Japan (non-U.S. corporation)
Petoca, Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5795678	19980818
APPLICATION INFO.:	US 1995-414195	19950331 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1994-85246	19940401
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Gorgos, Kathryn L.	
ASSISTANT EXAMINER:	Wong, Edna	
LEGAL REPRESENTATIVE:	Oblon, Spivak, McClelland, Maier & Neustadt, P.C.	
NUMBER OF CLAIMS:	6	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	6 Drawing Figure(s); 3 Drawing Page(s)	
LINE COUNT:	904	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A negative electrode for use in a secondary **battery** which

comprises milled graphite fibers derived from mesophase pitch each having circumferential, upper end and lower end faces, the milled graphite fibers each being composed of graphite layers having therebetween voids as inlets and outlets for lithium ions, all of the circumferential, upper end and lower end faces having openings of the voids between the graphite layers, which serve as inlets or outlets for lithium ions. This negative electrode for use in a secondary **battery** can be utilized to provide a lithium secondary **battery** of nonaqueous electrolyte which has large charge and discharge capacities and which permits setting the current density at charge or discharge high.

L7 ANSWER 6 OF 14 USPATFULL

ACCESSION NUMBER: 96:106294 USPATFULL
 TITLE: Lllithium secondary **battery** and process for preparing negative-electrode active material for use in

the same
 INVENTOR(S): Yamada, Kazuo, Kitakatsuragi-gun, Japan
 Mitate, Takehito, Yamatotakada, Japan
 Yoneda, Tetsuya, Nabari, Japan

Nishimura, Naoto, Kitakatsuragi-gun, Japan
 PATENT ASSIGNEE(S): Sharp Kabushiki Kaisha, Osaka, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5576121	19961119
APPLICATION INFO.:	US 1995-469926	19950606 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1994-264005	19941027
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Bell, Bruce F.	
LEGAL REPRESENTATIVE:	Nixon & Vanderhye	
NUMBER OF CLAIMS:	17	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	4 Drawing Figure(s); 3 Drawing Page(s)	
LINE COUNT:	1151	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A lithium secondary **battery** is disclosed which comprises: a positive electrode; a negative electrode; and a nonaqueous ion conductor, the negative electrode including a primary negative-electrode active material of a graphite which is capable of intercalation and deintercalation of lithium ions, and a secondary negative-electrode active material of a cupric oxide having a low crystallinity.

L7 ANSWER 7 OF 14 USPATFULL

* ACCESSION NUMBER: 96:3594 USPATFULL
 TITLE: Alkaline manganese **battery**
 INVENTOR(S): Mototani, Yuji, Yawata, Japan
 Asaoka, Junichi, Ikoma, Japan
 Tanaka, Hitoshi, Sapporo, Japan
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Osaka, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5482798	19960109
APPLICATION INFO.:	US 1995-406595	19950320 (8)

NUMBER	DATE
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PRIORITY INFORMATION: JP 1994-57335 19940328
DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Kalafut, Stephen
ASSISTANT EXAMINER: Lilley, Jr., Richard H.
LEGAL REPRESENTATIVE: Stevens, Davis, Miller & Mosher
NUMBER OF CLAIMS: 4
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 5 Drawing Figure(s); 5 Drawing Page(s)
LINE COUNT: 293

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An alkaline **battery** having excellent discharge characteristics and higher discharge capacity with an increase in its internal resistance being suppressed is disclosed. The alkaline **battery** has a positive electrode active material which comprises primarily manganese dioxide and electroconductive carbon material. The electroconductive carbon material comprises **expanded graphite** particles having an average particle size in the range from 0.5 to 15 .mu.m, and the content of the **expanded graphite** particles is in the range from 2 to 8% by weight based on the solids in the positive electrode active material.

L7 ANSWER 8 OF 14 USPATFULL

ACCESSION NUMBER: 94:9314 USPATFULL
TITLE: Removal of oil from water
INVENTOR(S): Maryasin, Ilya, Jerusalem, Israel
Sandbank, Enrico, Haifa, Israel
Shelef, Gedaliah, Haifa, Israel
PATENT ASSIGNEE(S): Technion Research and Development Foundation Ltd.,
Israel (non-U.S. corporation) a part interest

	NUMBER	DATE
PATENT INFORMATION:	US 5282975	19940201
APPLICATION INFO.:	US 1992-853937	19920319 (7)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1990-632171, filed on 21 Dec 1990, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	IL 1989-92872	19891225
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Straub, Gary P.	
ASSISTANT EXAMINER:	Hendrickson, Stuart L.	
NUMBER OF CLAIMS:	6	
EXEMPLARY CLAIM:	1	
LINE COUNT:	268	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A hydrophobic and oleophilic particular vermicular structure of **expanded graphite**, possessing the property of absorbing in a selective manner only large amounts of petroleum products from a water media is described. This expanded grahite is characterized by three main properties: (a) a specific density in the range of 0.003-0.1 g/ml; (b) a surface area in the range of 50-200 m.sup.2 g/ml; and (c) closed pores in the range of 3% to 20%. The particular structure of the **expanded graphite** can be used in the form of particulate, pillows, blankets, booms or as a filter medium. Preferred particles sizes of the **expanded graphite** are in the range of between 0.5 to 3 mm. The oil absorbed onto the expanded grahite can be released by pressure or recovered by solvent extraction.

L7 ANSWER 9 OF 14 USPATFULL

ACCESSION NUMBER: 91:44594 USPATFULL

TITLE: Electroconductive integrated substrate and process for producing the same
 INVENTOR(S): Miwa, Kishio, Shiga, Japan
 Fukui, Hiroaki, Shiga, Japan
 Noma, Fumiaki, Shiga, Japan
 PATENT ASSIGNEE(S): Toray Industries, Inc., Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5021284	19910604
APPLICATION INFO.:	US 1989-315115	19890224 (7)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-43084	19880224
	JP 1988-136282	19880602
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Van Balen, William J.	
LEGAL REPRESENTATIVE:	Birch, Stewart, Kolasch & Birch	
NUMBER OF CLAIMS:	18	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	12 Drawing Figure(s); 6 Drawing Page(s)	
LINE COUNT:	970	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An electroconductive integrated substrate and a process for producing the same, which comprises a porous carbonaceous plate having a large number of pores and gas permeability, and a gas unpermeable electroconductive plate laminated on the porous carbonaceous plate and integrally bonded thereto by thermoplastic resin which is present substantially only in the pores of the porous carbonaceous plate. It is preferred to use thermoplastic resin having a melting viscosity of from 10.sup.2 to 10.sup.6 poises, and a gas permeable porous carbonaceous plate having a mean pore diameter of from 20 to 150 .mu.m and a porosity of from 40 to 85%. The porous carbonaceous plate and the gas impermeable electroconductive plate are laminated one upon the other with a thermoplastic resin film interposed therebetween, and the film is melted to bond the plates together. The integrated substrate obtained has an electrical resistance of not greater than 7 m.OMEGA., preferably not greater than 1.5 m.OMEGA., at the bonded surface in the thickness direction thereof.

L7 ANSWER 10 OF 14 USPATFULL

ACCESSION NUMBER: 89:76344 USPATFULL
 TITLE: Secondary electrical energy storage device and electrode therefor
 INVENTOR(S): McCullough, Jr., Francis P., Lake Jackson, TX, United States
 Beale, Jr., Alvin F., Lake Jackson, TX, United States
 PATENT ASSIGNEE(S): The Dow Chemical Company, Midland, MI, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4865931	19890912
APPLICATION INFO.:	US 1984-678186	19841204 (6)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1983-558239, filed on 5 Dec 1983, now abandoned	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Kalafut, Stephen J.	
LEGAL REPRESENTATIVE:	Lezdey, John	
NUMBER OF CLAIMS:	10	

EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 5 Drawing Figure(s); 3 Drawing Page(s)
LINE COUNT: 814

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An electrode suitable for use in energy storage devices is described which is made of an assembly of an electrically conductive carbonaceous material having conjugated and preferably polybenzenoid plate-like structures. The carbonaceous material has a Youngs modulus of greater than 1,000,000 psi. The so-defined electrode material does not undergo

a substantial change in dimension during repeated electrical charge and discharge cycles. Additionally there is described an energy storage device utilizing the above described electrode.

L7 ANSWER 11 OF 14 USPATFULL

ACCESSION NUMBER: 88:35850 USPATFULL
TITLE: Graphite intercalation compound film and method of preparing the same
INVENTOR(S): Murakami, Mutsuaki, Machida, Japan
Watanabe, Kazuhiro, Kawasaki, Japan
Yoshimura, Susumu, Yokohama, Japan
PATENT ASSIGNEE(S): Research Development Corp. of Japan, Tokyo, Japan
(non-U.S. corporation)
Matsushita Elec. Industrial Co. Ltd., Osaka, Japan
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4749514	19880607
APPLICATION INFO.:	US 1986-914922	19861003 (6)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1985-225997	19851012
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Barr, Josephine	
LEGAL REPRESENTATIVE:	Yee, Stephen F. K.	
NUMBER OF CLAIMS:	5	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	2 Drawing Figure(s); 2 Drawing Page(s)	
LINE COUNT:	640	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention relates to a graphite intercalation compound in the form of a film, which is obtained by intercalating a donor type, an acceptor type or a covalent type material between the layers of graphite film obtained by thermal treatment of poly(phenylene oxadiazole). The obtained intercalated graphite film has a large scale area and has an extremely improved stability compared with known graphite intercalation compounds.

L7 ANSWER 12 OF 14 USPATFULL

ACCESSION NUMBER: 83:23991 USPATFULL
TITLE: Electrochemical storage cell
INVENTOR(S): Mennicke, Stefan, Leimen-Gauangelloch, Germany,
Federal
Republic of
Weddigen, Gert, Heidelberg-Handschuhsheim, Germany,
Federal Republic of
PATENT ASSIGNEE(S): Brown, Boveri & Cie AG, Mannheim, Germany, Federal
Republic of (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4388381	19830614
APPLICATION INFO.:	US 1981-286452	19810724 (6)

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1980-3028836	19800730
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Walton, Donald L.	
LEGAL REPRESENTATIVE:	Lerner, Herbert L.; Greenberg, Laurence A.	
NUMBER OF CLAIMS:	13	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	4 Drawing Figure(s); 3 Drawing Page(s)	
LINE COUNT:	449	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Electrochemical storage cell or **battery** of the **alkali** metal and chalcogen type with at least one anode space intended for receiving the anolyte and a cathode space for receiving the catholyte. The spaces are separated from each other by an **alkali** -ion-conducting solid electrolyte wall, and sulfur or sulfides are filled into the cathode space. The cathode space is filled with two or more porous layers of which always at least one is ion-conducting and one is electron-conducting. At least one ion-conducting layer rests at least in regions against the solid electrolyte, and at least one electron-conducting layer rests at least in some areas against the metallic housing of the storage cell. An electron-conducting layer is adjacent to each ion-conducting layer and vice versa. At least the electron-conducting layer is impregnated with sulfur.

L7 ANSWER 13 OF 14 USPATFULL

★ ACCESSION NUMBER: 82:45994 USPATFULL
 TITLE: Method of producing a graphite intercalation compound
 INVENTOR(S): Watanabe, Nobuatsu, Nagaokakyo, Japan
 Kondo, Teruhisa, Toyonaka, Japan
 Ishiguro, Jiro, Suita, Japan
 PATENT ASSIGNEE(S): Toyo Tanso Co., Ltd., Osaka, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4350576	19820921
APPLICATION INFO.:	US 1980-215846	19801212 (6)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1979-161439	19791214
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Andrews, R. L.	
LEGAL REPRESENTATIVE:	Armstrong, Nikaido, Marmelstein & Kubovcik	
NUMBER OF CLAIMS:	6	
EXEMPLARY CLAIM:	6	
NUMBER OF DRAWINGS:	2 Drawing Figure(s); 2 Drawing Page(s)	
LINE COUNT:	421	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method of producing a graphite intercalation compound by intercalating a substance into graphite between layers thereof, characterized in that graphite particles are subjected to electrolysis in an electrolytic solution containing a substance capable of intruding into the interlayer spacings of the graphite while applying a load to the graphite particles in at least one direction to press all the graphite particles to the surface of an anode. According to the method, there can be obtained the desired product having a uniform and high quality.

L7 ANSWER 14 OF 14 USPATFULL

ACCESSION NUMBER: 74:49316 USPATFULL

TITLE: RADIOISOTOPIC THERMOINIC CONVERTER
INVENTOR(S): Rason, Ned S., Dayton, OH, United States
De Steese, John G., Kennewick, WA, United States
Gasper, Kenneth A., Richland, WA, United States
PATENT ASSIGNEE(S): McDonnell Douglas Corporation, Santa Monica, CA,
United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 3843896	19741022
APPLICATION INFO.:	US 1972-223691	19720204 (5)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1969-794933, filed on 29 Jan 1969, now abandoned	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Duggan, D. F.	
LEGAL REPRESENTATIVE:	Jeu, D. N.; Jason, Walter J.; Royer, Donald L.	
NUMBER OF CLAIMS:	14	
NUMBER OF DRAWINGS:	19 Drawing Figure(s); 6 Drawing Page(s)	
LINE COUNT:	1780	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Atomic diode **battery** or thermionic converter including a radioisotopic fuel pellet enclosed in a capsule having an emitter surface extending over substantially the entire capsule external area,

a housing enclosing the emitter capsule and having an internal collector surface extending over substantially the entire housing internal area and maintained at a predetermined spacing from the emitter surface, a cesium vapor source communicating with the interelectrode space under such low vapor pressure as to effect nominally vacuum mode operation, and emitter and collector connections providing an electrical output from the **battery**. An optimum relationship established among **battery** parameters provides maximum energy conversion efficiency at practical electrode temperatures and spacings using available materials.

L3 ANSWER 1 OF 1 CA COPYRIGHT 1999 ACS
 ACCESSION NUMBER: 131:76201 CA
 TITLE: Alkaline **battery** having a manganese dioxide
 cathode incorporating **expanded**
graphite
 INVENTOR(S): Nardi, John C.
 PATENT ASSIGNEE(S): Eveready Battery Company, Inc., USA
 SOURCE: PCT Int. Appl., 46 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9934673	A1	19990715	WO 1999-US270	19990106
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9922139	A1	19990726	AU 1999-22139	19990106
PRIORITY APPLN. INFO.:			US 1998-72269	19980107
			US 1998-213544	19981217
			WO 1999-US270	19990106

AB An alk. **battery** has a cathode contg. an **expanded graphite** as an elec. conductive carbon material. The **expanded graphite** has a **kerosene** absorption in the range of 2.2 to 3.5 mL/g, to provide enhanced service performance to the cell.